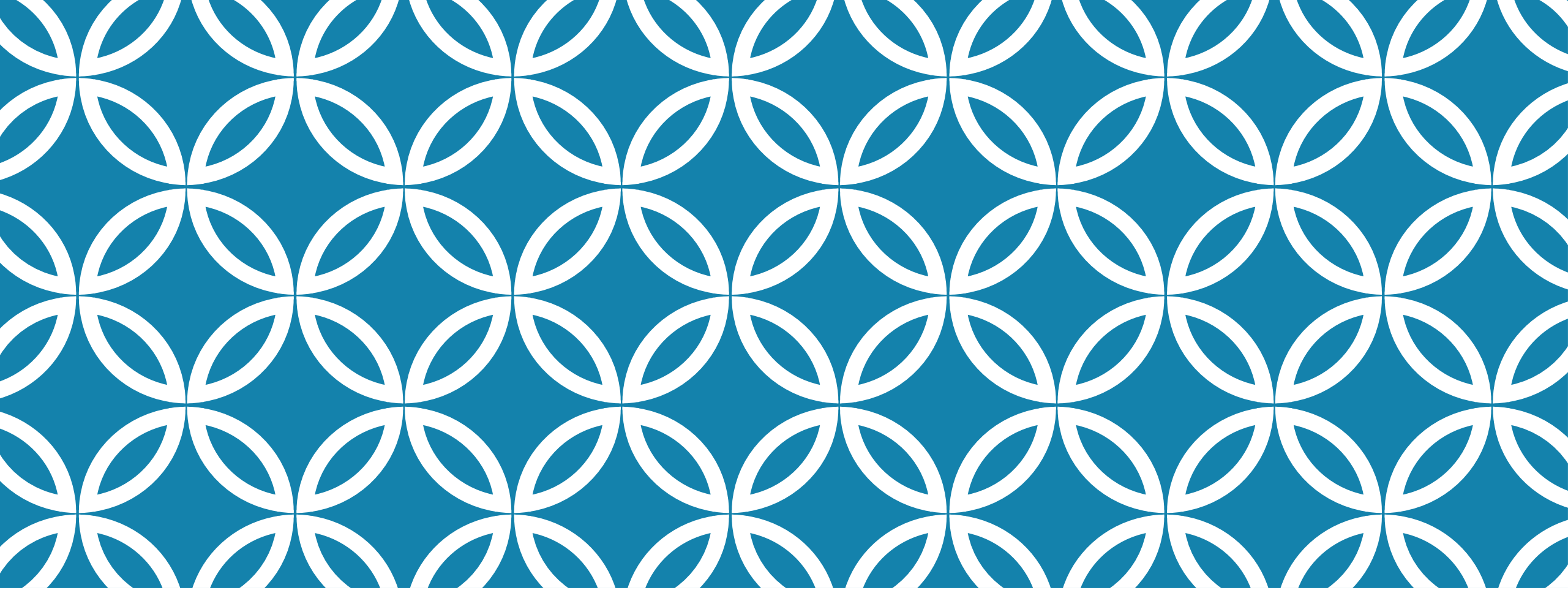


ACID-BASE ABG INTERPRETATION

Fall 2018

DRAW IT OUT!

ABA

BAB

>>>

INTERPRETATION- STEP BY STEP

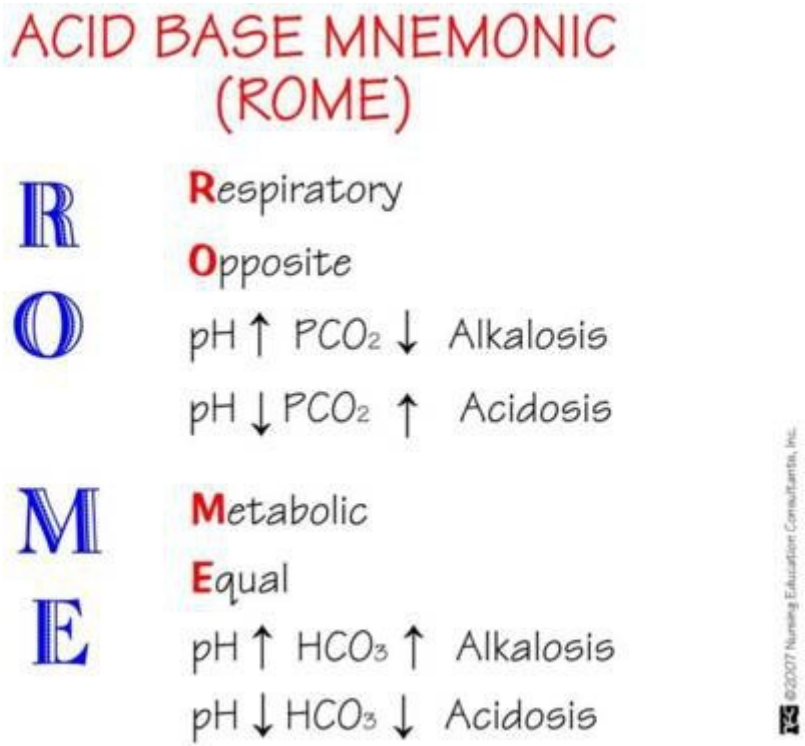
STEP ONE: pH

- Acidosis or alkalosis?

STEP TWO: PCO2

STEP THREE: HCO3

ROME


ACID BASE MNEMONIC
(ROME)
R
Respiratory
O
Opposite
pH ↑ PCO2 ↓ Alkalosis
pH ↓ PCO2 ↑ Acidosis
M
Metabolic
E
Equal
pH ↑ HCO3 ↑ Alkalosis
pH ↓ HCO3 ↓ Acidosis
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INTERPRET:
PH (7.28) PACO2 (56) HCO3 (25)

pH – acidosis or alkalosis?

acidosis

CO2 – between 35-45?

↑

HCO3 – between 22-26?

WNL

Interpretation: Respiratory Acidosis

INTERPRET:
PH (7.29) PACO2 (43) HCO3(18)

pH- acidosis or alkalosis

Acidosis

PCO2- between 35-45?

WNL

HCO3-between 22-26 ?

↓

Interpretation- Metabolic Acidosis

INTERPRET-
PH (7.50) PACO2 (36) HCO3 (27)

pH is it acidosis or alkalosis?

Alkalosis

PCO2 – 35-45?

WNL

HCO3 – 22-26?

↑

Interpretation- Metabolic Alkalosis

INTERPRET:
PH (7.35) PACO2 (42)   HCO3 (26)

pH is it acidosis or alkalosis?

Normal

Is the PaCo2 between 35-45?

WNL

Is the HCO3 between 22-26?

WNL

Interpretation- Normal ABG results

DETERMINING COMPENSATION :

Uncompensated: the pH will be abnormal and either the HCO_3 or the $PaCO_2$ will be abnormal….

Partially compensated: the pH, HCO_3, and $PaCO_2$ will be abnormal.

Fully compensated: The pH will be normal, but the $PaCO_2$ and HCO_3 will both be abnormal. Looking back at the pH will provide a clue as to which system initiated the problem, respiratory or metabolic. If the pH is < 7.40, think “acidosis” and determine which system has the acidosis value. If the pH is >7.40 think “alkalosis” and determine which system has the alkalosis value.

INTERPRET: UNCOMPENSATED, PARTIALLY COMPENSATED, FULLY COMPENSATED? PH(7.33) PACO2 (29) HCO3 (16)

pH- acid , base, normal?

Acidosis

PaCO2 between 35-45?

↓

HCO3 between 22-26?

↓

Interpretation- partially compensated metabolic acidosis

LET’S DO ONE MORE…. PH (7.12) PACO2 (60) HCO3 (29)

pH is it acidosis or alkalosis?

Acidosis

Is the PaCO2 between 35-45?

↑

Is the HCO3 between 22-26?

↑

Interpretation: Partially compensated respiratory acidosis

QUESTION 1:

A young adult female client who has a history of depression is admitted with confusion and lethargy. She was found at home with an empty bottle of aspirin next to her in the bed. Vital signs reveal a blood pressure of 104/72, pulse 116 with regular rhythm, and a respiratory rate of 42/min and deep. Which of the following arterial blood gas results should the nurse expect?

1. pH 7.38, PaO_2 96mm Hg, $PaCO_2$ 38mm Hg, HCO_3 24 mEq/L
2. pH 7.48 PaO_2 100mm Hg, $PaCO_2$ 28mm Hg, HCO_3 23 mEq/L
3. pH 6.98 PaO_2 100mm Hg, $PaCO_2$ 30mm Hg, HCO_3 18 mEq/L
4. pH 7.58, PaO_2 96mm Hg, $PaCO_2$ 38mm Hg, HCO_3 29 mEq/L

QUESTION 2

An adult male client was involved in a single-vehicle MVC, He is reporting chest pain and difficulty breathing. A chest x-ray reveals a pneumothorax and blood gas analysis is obtained. Which of the following results would the nurse expect?

1. pH 7.06, PaO_2 86 mm Hg, $PaCO_2$ 52 mmHg, HCO_3 24 mEq/L
2. pH 7.42, PaO_2 100 mm Hg, $PaCO_2$ 38 mmHg, HCO_3 23 mEq/L
3. pH 6.98, PaO_2 100mm Hg, $PaCO_2$ 30 mmHg, HCO_3 18 mEq/L
4. pH 7.58, PaO_2 96 mm Hg, $PaCO_2$ 38 mmHg, HCO_3 29 mEq/L

QUESTION 3

A client is in the first trimester of pregnancy. She has experienced approximately 1 week of severe nausea with frequent vomiting. Which of the following conditions should the nurse expect to find if an arterial blood gas is analyzed?

1. Respiratory acidosis
2. Respiratory alkalosis
3. Metabolic acidosis
4. Metabolic alkalosis

NOW LET’S PRACTICE MORE INTERPRETATIONS….